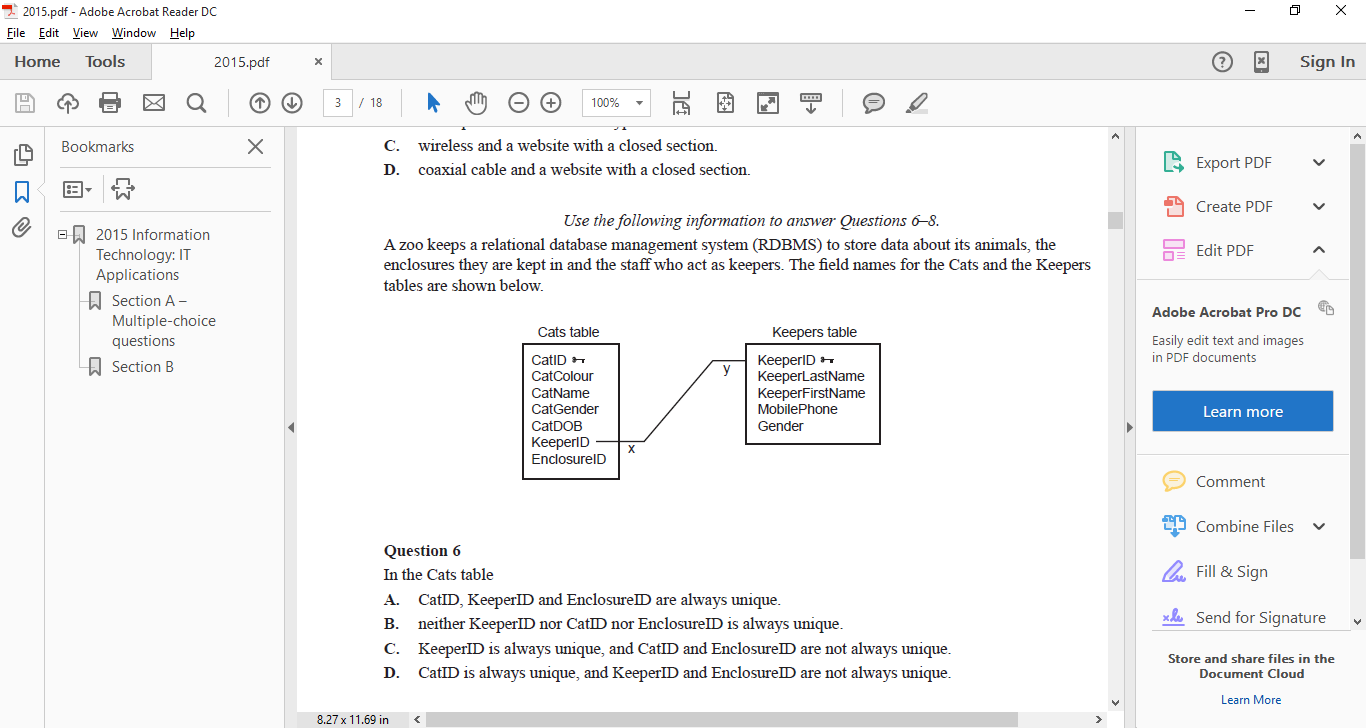
**Unit 3 Outcome 1: Short Answer Questions**

1. A zoo keeps a relational database management system (RDBMS) to store data about its animals, the enclosures they are kept in and the staff who act as keepers. The field names for the Cats and the Keepers tables are shown below.



1. Using the diagram above explain the basic structure of a relational DBMS.

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(3 marks)

1. Which of the fields would be considered primary keys? Explain by defining a primary key.

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(3 marks)

1. What type of relationship is the one shown by x-y? Explain.

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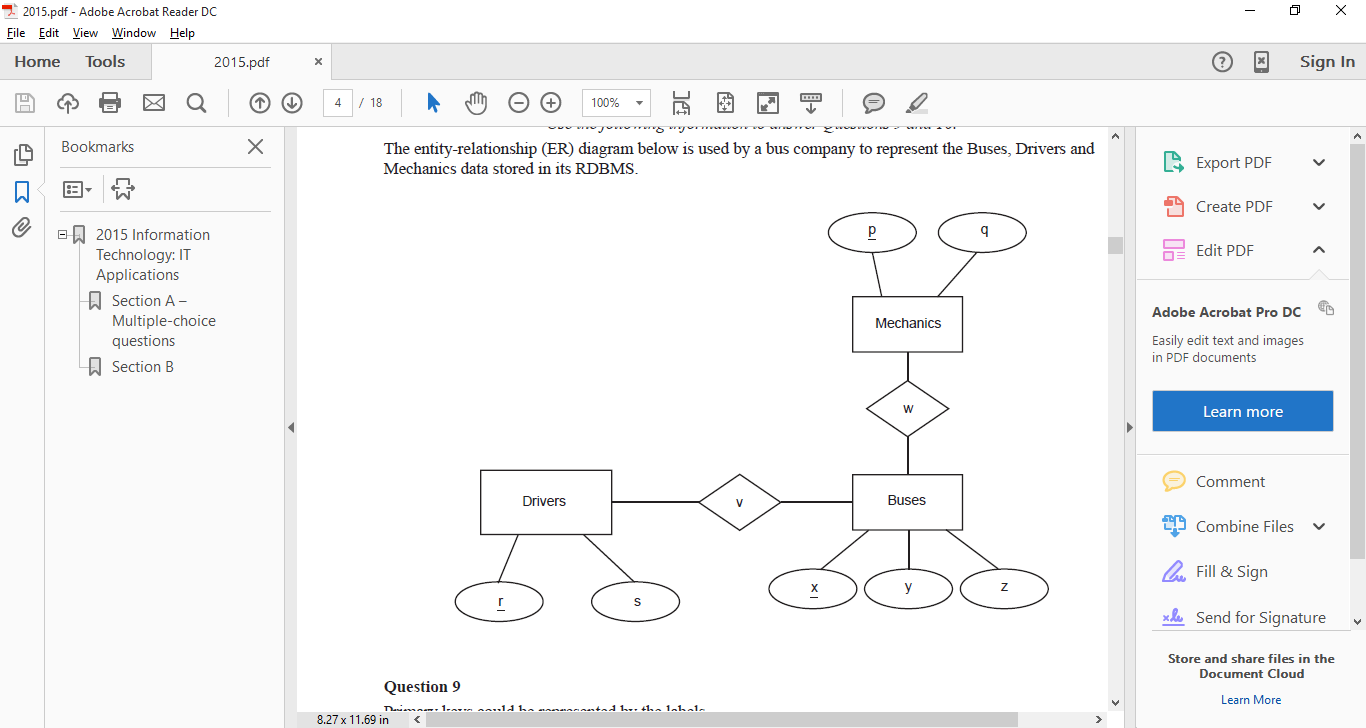
(2 marks)

1. Explain the purpose of using appropriate naming conventions within a RDBMS. List some conventions used in the example above.

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(3 marks)

1. The diagram below is used by a bus company to represent the data stored in its RDBMS.

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1. What type of diagram is this? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which labels would best represent the primary keys? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. The labels w and v would best represent what relationship? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. marks)
5. North Central Garden Supplies is a new business ran by Jill and her husband Ian. They have been operating 12 months but are already finding difficulties with managing the data they are collecting efficiently and effectively. Most of their data is stored on an old laptop in a spreadsheet file. This is fine for listing records and calculating amounts but they find that the software restricts their ability to organise, manipulate and filter the data. Also they are concerned how secure the data is, especially as the laptop is connected to the internet.
6. Distinguish between efficiency and effectiveness with the use of examples.

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(3 marks)

1. What advantages would the business gain from using a RDBMS instead of a flat file database? In your answer explain the file structure of a RDBMS.

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(3 marks)

1. What are the benefits of keeping the business data secure, especially with data relating to customers?

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(4 marks)

1. List three examples of physical security and three examples of software security that the business could use.

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| **Physical security** | **Software security** |
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(3 marks)

1. A small wholesale business currently sells only high quality umbrellas in two styles called Travel and Business. Orders are placed by phone and sales are restricted to 25 umbrellas per order. The owners intend to introduce online sales and add two extra styles called Sports and Fashion. They aim to update the database that manages sales and stores the data they collect. A section of the current database that was designed to manage sales is shown below.

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| **Field** | **Data type** | **Description** |
| ProductID | text | unique identifier made up of three characters and a three digit code, such as TRA001 or BSU001 |
| Umbrella\_Styles | Boolean | Travel-style or business-style umbrellas (T or B) |
| Umbrella\_Price | decimal | umbrella price per unit in $A |
| Accept | Boolean | user accepts product being left at the door if they are not at home (Y/N) |
| Order\_Quantity | integer | number of umbrellas sold per order is limited to 25 |

1. Recommend the appropriate data type for each of the Umbrella\_Styles and Accept fields when the two new styles are introduced.

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| Umbrella-Styles field - |
| Accept field - |

(2 marks)

1. Identify one testing technique that the business could use on the new online sales system to ensure it works as intended. Justify your answer.

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(2 marks)

1. Celeste is the manager of a youth organisation that plans to create a website called ‘Seven Degrees Youth Club’. The website will allow members of the organisation to participate in a social network. Celeste wants members to enter their contact list of friends and join interest groups so they can chat about common interests. A sample of the records and the data table from the website is shown below.

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| --- | --- | --- | --- |
| **userName** | **fullName** | **interestGroups** | **contactList** |
| fancy\_cat | Francine Ulas | love-planes  classOf2014  cooking\_rox | paperclip55  panic\_disco  starwarsfan  melanie\_franks  WalterEllison27 |
| panic\_disco | Winston Pantera | manic\_music  classOf2014  bird\_watchers  gleeclubfans | paperclip55  khank\_tran  maryElizabeth  WalterEllison27  MrNumber1AFLFan |
| maryElizabeth | Mary Jacobs | model\_builders  howstuffworks  explain\_everything  cooking\_rox | khank\_tran  DrVet  fancy\_cat  starwarsfan |
| paperclip55 | Mary Jacobs | manic\_music  mangafan  cooking\_rox  love\_planes | starwarsfan  panic\_disco  vegeburger  PieCakePan |

1. Normalise the table above so it achieves 3NF

(5 marks)

1. What benefits will normalisation provide for the database?

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(3 marks)

1. The data table below is used to record data for an after-school program.

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| --- | --- | --- | --- | --- | --- |
| **Field 1** | **Field 2** | **Field 3** | **Field 4** | **Field 5** | **Field 6** |
| Griffith | Sally | Year 8 | Chess | Tues | 3:30pm |
| O’Grady | Ralph | Year 7 | Gym | Mon | 15:00 |
| McKinnon | Barbara | Year 7 | Gardening | Wed | 1600 |
| Rankine | Howard | Year 9 | Chess | Tu | 15:30 |

1. Recommend a more effective set of field names for the data table.

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| Field 1 |
| Field 2 |
| Field 3 |
| Field 4 |
| Field 5 |
| Field 6 |

(3 marks)

1. Describe one convention used in the field names that you have recommended.

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(1 mark)

1. Recommend a data format for one field that would improve the clarity of the information. Justify your answer.

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(2 marks)

1. Charlton Traders have recently begun taking orders for their products inline. The website has been set up to allow customers to browse the stock items available and to make a secure purchase. To use the website the potential customer must first sign up and provide personal information to Charlton Traders such as name and address as well as areas of interest.
2. What advantages do Charlton traders gain from acquiring this data online?

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(3 marks)

1. What reasons do customers have for supplying their personal details online?

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(2 marks)

1. Why is it important that the rights of the customers are protected? Give two examples of procedures that will achieve this.

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(4 marks)

1. Charlton College has decided to create a database that will allow the storage and manipulation of data relating to past students. You have been asked to design the RDBMS>
2. List two design tools that could be used for each of the following purposes.

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| Design tool for representing the structure of the RDBMS - |
| Design tool for representing the appearance of the RDBMS - |

(2 marks)

1. List a design principle under each of the following headings.

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| Useability - |
| Accessibility - |
| Appearance (1) - |
| Appearance (2) - |
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(4 marks)



